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Vet, R.; Peters, S.C.A.; Heng, S.H.

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Ruud Vet
Steve C. A. Peters
Michael S.H. Heng

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Ruud Vet, Steve C.A. Peters, Michael S.H. Heng
Faculty of Economics
Vrije Universiteit Amsterdam

ABSTRACT

In the past decades, the potential of information systems to support organizational activities and to attain competitive advantage has been widely recognised by academic literature as well as the business community. IS planning methods have been constructed in an attempt to use IS successfully in organizations. However, these planning methods have been found to be theoretically unsound and their practical usefulness has no empirical support. This paper reports a study of the evolution of an IS strategy within LeaseHold N.V., a global Dutch leasing company. This case study is informed by concepts that have been found promising in the area of organizational evolution. Our study suggests that the idea of co-evolution of IS with its organization is especially interesting.

KEY WORDS: IS strategy, Organizational change, Evolution, IS planning methods

1. INTRODUCTION

In the past decades, the potential of information systems (IS)[1] to support organizational activities and to attain competitive advantage has been widely recognized by academic literature as well as the business community. As Galliers (1993) puts it: "considerable energy is being expended in the search for the Holy Grail of competitive advantage from information systems". Especially in financial services, competencies in the area of IS are becoming increasingly important (Quinn and Paguette, 1990).

Recognizing the potential of IS is one thing, how to use IS strategically in organizations to attain competitive advantage is another. Strategic IS planning might give the possibility to visualize the potential contribution of information systems to the organization (Lederer and Gardiner, 1992). Especially in the eighties, the general agreement seemed to be that an IS strategy should be derived from the business strategy (e.g. Beats, 1993; Chan and Huff, 1992; Powell, 1993; Kovacevic and Majluf, 1993; Scott Morton, 1991). The search for this link between business and IS strategy has led to the construction of IS planning models for integrating these two areas of strategy. Mintzberg (1987) argues that planning models are useful when programming already created strategies, not for the creation of strategies. IS planning models, initially created to develop the IS function in organizations, may have lost their practical use. Moreover, research in organizations where the use of IS has resulted in a competitive edge have indicated that the practical use of IS planning methods is minimal (Yetton et al., 1994; Beats, 1992; Galliers, 1993). The lack of empirical research and the idea that planning methods fail to implement IS strategically in organizations suggest that

[1]. In this article, we will use the term information systems to capture the whole concept of information; information systems in organizations, routines related to these systems and the technology (IT) that makes these systems possible.

more investigation is needed within the business area.

. More recently, incremental and evolutionary approaches towards the use of IS in organizations have received some attention (Galliers, 1993). These approaches have points of contact with classical findings in the formulation of organizational strategies, advocated by Mintzberg (1987), Quinn (1978) and Lindblom (1959). This paper is an attempt in this direction and investigates the evolution of an IS strategy within LeaseHold N.V., a global Dutch leasing company. By conducting interviews, examining organizational documents related to IS strategy and witnessing the development of IS in practice, a longitudinal field research approach was taken to investigate the evolution of the IS strategy. This approach is proposed by Pettigrew (1990) and the aimed result is a thorough study of linkages between changes in business environment, business strategy and the IS strategy. Based on this study, we describe how an IS strategy has evolved at LeaseHold. This article draws on theories on IS in organizations as well as theories on organizational evolution.

This paper is structured as follows: it first presents an overview of literature on the use of IS in organizations in section 2. In section 3, theories of evolutionary dynamics of organizations as well as evolutionary dynamics of information systems will be presented. Section 4 presents the case study of the evolution of an IS strategy at LeaseHold. Based on this study, the discussion of the match between theory and business practice is conducted in section 5. The findings and recommendations for further research on this subject will be summarized in the conclusion, the final section of this article.

2. INFORMATION SYSTEMS IN ORGANIZATIONS

The past decades witness a shift from focusing on the pure administrative role of IS in organizations, via an operations role, to a more competitive role (Henderson et al, 1992; Pruijm, 1990; Luftman, 1996; Venkatraman, 1991). The administrative role relates to the automation of specific administrative functions and the aim is to enhance efficiency. The operations role is an extension of the administrative role and focuses on the capability to automate the entire set of business processes as opposed to only administrative activities. Especially during the 1980's, academics and the business community recognized the potential of IS to effect the competitive capability of the organization. This competitive role focuses on IS as a source of competitive advantage (Henderson et al, 1992; Galliers, 1993, Pruijm, 1990). Many articles report cases where the use of IS delivered sustainable competitive advantage. This "mythology of the success of IS has begun to pale in the cold light of the nineties" (Galliers, 1993) and the competitive role of IS in organizations must be viewed with great caution.

IS planning methods

Nevertheless, IS planning models, aimed at using IS strategically in organizations (the competitive role of IS), have received much attention. Beats (1992), Powell (1993), Pruijm (1990) and van der Poel (1995) have described Top Down Strategic Planning models as methods to use IS strategically in organizations. The essence of these models is that the business strategy must be analyzed and from this strategy, an IS strategy should be derived. Closely linked to these methods is the Critical Success Factor planning approach (Pruijm, 1990). This method aims at the identification of critical success factors for organizations, relate information needs to these factors and establish IS applications that supply these critical information needs.

The theories described above assume that the environment in which the organization operates is

stable and that the IS strategy is not influenced by the environment. Henderson et al (1992), Venkatraman (1991) and Luftman (1996) have described Strategic Alignment as a method to use IS strategically in organizations. This method does recognize the influence of the environment on IS. The basic idea is that, in order to use IS successfully, the IS strategy must be coordinated with the internal ▪ (the infrastructure of the organization) as well as the external environment.

The use of these strategic IS planning models has been questioned . Galliers (1993) doubts the claim that gains in competitive advantage can arise from strategic IS planning. He states that these advantages more or less must evolve in organizations. Furthermore, IS applications can be easily copied by rivals and the IS environment changes very rapidly. Galliers argues that sustainable competitive advantage is only possible if additional features, desired by customers or created by new IS possibilities, are continuously added. Inkpen and Choudhury (1995) find that in a number of organizations no business strategy can be identified at all. The usefulness of strategic IS planning approaches, mostly based on the presence of a business strategy, can therefore be doubted. Pruijm (1990) reports that in almost all of the European case stories where competitive advantage was established through IS, the successful system was an incremental evolution of an existing application. These findings show points of contact with the traditional views on evolving business strategies (Quinn, 1978; Mintzberg, 1987; Lindblom, 1959) and suggest that the strategic use of IS is more the result of a process of continuous evolution of IS in organizations.

2. EVOLUTION THEORIES AND ORGANIZATIONAL DEVELOPMENT

Several authors (e.g. Nelson and Winter, 1982; Ginsberg and Baum, 1993; Fombrun, 1993; Miner, 1993; Dosi, 1988) have made attempts to explain organizational development and behaviour by applying evolution theories. Basic evolutionary characteristics, drawn from biology and sociology, are used to analyze the development process of organizations. In general, an organization is compared with, what is called, a 'specie' in biology; an entity that follows a path of evolution. From the confrontation between organizational development and evolution theories, the following features of organizational evolution are evident.

Path dependency

From its founding, an organization is said to develop via a path of evolution. The path of evolution is built up out of continuous changes of organizations in order to survive. This process can be compared with the phenomenon of natural selection in biology (Dawkins, 1986). The result of this sequence of changes (cumulative natural selection) is a path of evolution that is unique for every organization; each organization has its own unique way of surviving. A main feature of paths of evolution is that they are irreversible in a sense that the past cannot be reversed and influences the future path of evolution (Dawkins, 1986; Nelson and Winter, 1982; March, 1993; Ginsberg and Baum, 1993; Mintzberg, 1987). The past path of evolution has resulted in an organization built up out of routines and organizational characteristics. This current context determines which opportunities and threats are important to the organization and, more important, which solutions (organizational changes) are applicable. The development process in the past determines thus the future path of evolution.

Furthermore, past changes have shaped the current context of organizations and result in the phenomenon that evolution is determined by "bounded rationality" (Ayres, 1994); Current context (Fombrun, 1993) and experience with past organizational change processes influence the interpretation of future changes and their consequences. Change processes from the past and characteristics of organizations

developed in the past will guide how organizations perceive changing external conditions and how they react to these changing conditions (Nelson and Winter, 1982; Ginsberg and Baum, 1993). Successful change processes in the past will be repeated while new ways of changing are feared because stakeholders are afraid of the unknown. Organizations learn from past experience and learning-by-doing as well as learning-by using are very important influences in the evolution of organizations (Dosi, 1988).

The role of the external environment

In the confrontation between organizational development and evolution theories, the external environment is considered to be the main driver of organizational change. Changes are brought about by the wish to survive or to exploit the changing conditions in the external environment (Dawkins, 1986). Nelson and Winter (1982) argue that the ability to survive and grow by exploiting the possibilities in the external (market) environment determines the relative position of an organization in relation to its competitors. Changes can also be forced upon organizations by, for example, government legislation. The wish to exploit or to survive possibilities drives economic change and, therefore, organizational evolution. Unfortunately, changes do not necessarily lead to a higher rate of success since competitors also evolve and organizational change does not necessarily mean improvement.

Because the environment is very turbulent, changes of species, and thus the path of evolution, are said to be accidental, jerky, non-linear and aimed at short term improvement (Ayres, 1994; Dawkins, 1986). Organizational changes can also be characterised as responses to the turbulent environment and aimed at short term improvement. The use of a formal plan of organizational change is thus not feasible according to evolutionary theories. Evolutionary theories do, however, recognize the influence of visions of key players in the evolution of organizations (Ayres, 1994). These visions may determine the way external changes are perceived and how the organization reacts to these changes.

The variation - selection - retention cycle

Organizations change to survive or to improve organizational performance. The question is: How are changing conditions or possibilities detected and how are these translated into organizational action? A possible solution is given by the 'variation - selection - retention' cycle (Nelson and Winter, 1982; Miner, 1993; Meyer, 1993; Ginsberg and Baum, 1993;) Current ways of doing things in organizations are challenged by variations: possibilities for changing the way of work in organizations. These variations can be brought about by changing market conditions, technological change, ideas of strategists in organizations, in fact variations can be brought about by everything. In most evolution theories on organizational change, technological innovation is considered to be the major, if not the only, source for variations. The variation stage delivers several alternatives for economic change. From this set of alternatives, a guide for future action is determined in the selection process. Nelson and Winter argue that mostly the criteria for selection is the wish to effect profitability. Evolutionary theorists stress the wish to survive and the reproduction of past successes as main criteria for selection. The last phase is the retention stage; the implementation of the chosen alternative in the organization.

Implications for organizations

March (1993) summarizes several characteristics of the descriptions given above. From evolutionary characteristics applied to organizational development, some suggestions for improving the path

of evolution are given. The course of organizational evolution is a result of a sequence of particular historical branches, representing turning points in the path of evolution, that are realized in the past development path (path dependency). March argues that the external environment is the source of opportunities and threats. This environment is rapidly changing and unpredictable. Because the evolution is a path of changes, representing responses to the environment, interventions in the course of an evolving organization is possible. By intervening at decision points in the evolution of an organization, desired organizational change can be realized. The aim of these interventions is to realize improvement of organizational performance or to construct a better match between the organization and the external environment. The results of the interventions are hard to forecast and interventions do therefore not necessarily lead to improvements. March discusses two possibilities to realize improvement: to strengthen the processes of evolution or to create a vision of destiny that gives a guideline for evolutionary intervention. An example of strengthening the evolutionary processes is that an organization must find the right balance between the possibility to seek out or generate new options (exploration) and improving the capabilities for implementing options that prove effective (exploitation). The 'vision of destiny'- approach aims at the identification of a desired course of evolution that provides guidelines for actions to take. March thus also stresses the potential influence of visions on the evolution of organizations.

Evolution theory applied to IS

In most articles where technology is confronted with evolution, the importance of evolving technology as a source of innovation for organizations is stressed (Freeman, 1988; Dosi and Orsenigo, 1988; Allen, 1988). Evolutionary dynamics of organizations, identified above, are recognized in these studies as well. Technical change is looked upon as the driver for change but the way these possibilities are translated in organizational action draw heavily upon the features of organizational evolution.

Literature on the confrontation of evolution theory and IS in organizations is still minimal. Recently, some attention has been given to the idea that organizations and the role of technologies in organizations co-evolve. This idea has given rise to the notion that technology can become the enabler of economic change. Technology provides possibilities to change (or completely turn around) the way of doing things in organizations (Soe and Markus, 1995). Ring and Kraemer (1984) have also made an attempt to confront evolutionary theories with organizational information systems. Nolan's stage model (1979) is elaborated in their paper as the first information systems model that bears evolutionary characteristics. Ring and Kraemer identified two kind of evolution models in this article; evolutionist models and evolutionary models. The evolutionist perspective assesses history as a developmental, progressive and directional set of changes that increase in their complexity or perfection with the passage of time but do not explain why changes happen. Evolutionary models focus on the mechanisms by which changes occur. In the discussion section, the evolutionary approach is followed: we will try to explain why changes in IS strategy have occurred and what has triggered these changes.

An attempt to apply theories of evolution to IS is also made by Rosenberg (1994). In his article on the development of telecommunications, path dependency in the evolution of telecommunications is stressed. Telecommunication is said to bear certain characteristics that makes telecommunications particularly path dependent. These characteristics are the very high switching costs of a chosen technology; future investments must remain compatible with currently chosen systems and the difficulties of choosing the right application of rapidly evolving technologies. Because telecommunications bear characteristics of IS, it is

argued that the characteristics that make the development of telecommunications heavily path dependent, can be applied to IS in organizations as well.

4. THE EVOLUTION OF AN IS STRATEGY AT LEASEHOLD

The founding and development of the organization

The organization was founded in 1963 as LeaseNed and the goal of this organization was to introduce the product equipment leasing in the Netherlands. LeaseNed grew very slowly in this period. This gave rise to the development of new, related products which are now at the core of the success of the organization, the leasing of cars. The organization grew very slowly in the seventies. Two oil crises made the driving of cars very expensive. LeaseNed recognized the potential of the car leasing product and started subsidiaries in Belgium, France, Germany and England. The five countries that were operational in the beginning of the seventies are now characterised as 'the Big Five'. Officially were the foreign subsidiaries controlled by LeaseNed, but in practice they were completely independent in their development. From the founding until 1980, one can easily say that LeaseNed did not formulate any formal business strategy. The move to start operations in other countries was not supported by a business strategy but was merely the recognition that the leasing product had high potential. IS was an unknown concept in the company in these years.

The beginning of the eighties

In 1981, the five subsidiaries were placed under the control of a holding company; LeaseHold. The subsidiaries were organized as profit centres and each profit centre was required to earn 15% profit on equity. This was the only control mechanism from the holding, the subsidiaries were very independent. The independence of the subsidiaries enabled great flexibility towards local customers and rapid growth of LeaseHold. The independence and flexibility resulted in the phenomenon that products, offered under the same name in the individual countries, evolved differently because the products were adapted to local needs.

LeaseHold still did not formulate an overall business strategy in this period. This was not necessary because each subsidiary grew rapidly and there was simply no need for interference from the holding. A result of the independence was that each subsidiary developed its own IS systems, customized to the local needs. The basic principles of each system, however, were the same. The Belgium subsidiary had created a lease administration system (the New Operational Leasing System, NOLS). This system was eventually used by all the other countries, except by LeaseNed. LeaseNed persisted in using their own system. The standard version of NOLS enabled LeaseHold to make new subsidiaries immediately operational. In the beginning of this period, the holding didn't have any IS personnel. The only co-ordination effort was established by the IS manager of LeaseNed, who travelled around the subsidiaries to give support. Because this support was considered to be insufficient, the holding established an IS department. The formal task of this department was to support the countries with the implementation, maintenance and development of NOLS.

The end of the eighties/beginning of the nineties

Business developments

At the end of the eighties, the holding controlled 10 countries. The company was organized as a set

of completely independent business units, controlled by the holding. The only control mechanism for the business units was the requirement to earn 15 % return on equity. This independence has given the opportunity for the individual subsidiaries to grow very fast with a quick development of leasing products. This caused a big variety of products in the organization. The synergy between the business units was minimal.

Because of increasing competition, the holding started to realize that synergy, joint development of products and exchange of knowledge could become key competencies that would give the opportunity for growth in the future. The management of the organization in this period can be characterized as ambiguous. On one hand the Board of Directors stressed the importance of the entrepreneurial approach of the local management. This characteristic has been the basis for the fast growth in the past. On the other hand, the holding started to gain more control over the subsidiaries because of the arguments mentioned above. The countries did not see the need for more co-ordination and the foreign subsidiaries, especially the 'Big Five', opposed strongly. The more recently founded subsidiaries followed the new strategy of the holding, mainly because these countries did not make any profit. The organization as a whole continued to grow very fast in this period. A positive influence for the growth of LeaseHold has been the return to core competencies by organizations in Europe. These companies started to sell or 'outsource' activities that did not belong to the core competencies of the organization. This outsourcing led to the transfer of activities on the management of company's lease car fleets to lease organizations. LeaseHold adhered to the start up of countries.

The IS strategy

The Board of Directors anticipated the danger of the development of completely separate information systems for each individual subsidiary. The notion to co-operate on areas such as finance and IS arose because co-operation on these areas did promise considerable cost reductions. For the IS area, this wish for more co-ordination resulted in the appointment of a Director of Automation at LeaseHold. The primary task of the director was to implement more co-ordination on IS for the entire organization. The director initiated an intended development of the IS function in these years that was based upon the ideas of the Board of Directors and a vision he had developed himself. One important feature of this vision was the goal to transform each business unit to an open network organization. At the end of the eighties, this vision and the wishes of the Board of Director moulded an IS strategy. This strategy was thus heavily influenced by the vision of one person. The IS strategy consisted out of the following starting points:

- to build up co-operation between the subsidiaries on IS;
- to extend and exchange knowledge on IS matters;
- IS should have its basis in the operations of the organization instead of just being an supportive tool.

From the moment the Director of Automation was appointed at the holding, his main focus has been the implementation of IS applications that supported the IS strategy. The forming of a network organization of each subsidiary can be looked upon as a huge organizational transformation. A big bang approach towards this transformation was, considering the past development path of LeaseHold, not feasible. This change process was started in the end of the eighties and is in 1997 still proceeding.

To be able to give better support to the subsidiaries and to control IS implementations, a central competence centre for IS was created in the end of this period. The Director of Automation became manager of this department. The tasks of this department were:

- co-ordination and control of IS group activities

- the reporting to the Board of Directors about IS subjects
- to advise local management about IS subjects
- control over the IS activities in new countries
- research and development

Implementation of the IS strategy

The starting points of the IS strategy have been the basis for decisions on IS implementations in this period. Under the leadership of the Director of Automation, applications were introduced in LeaseHold that supported the IS strategy. Examples of these applications are a unique hardware platform (the AS400) for the entire organization, a Wide Area Network (WAN) and a Local Area Network (LAN). The implementation of the WAN and the LAN did not run into big problems. The implementation of the AS400 was the first step on the road to more co-ordination of LeaseHold. It was the first time the holding actually appealed to their formal power to implement organization wide IS and this resulted in strong opposition from the subsidiaries, especially the Big Five. The implementation did take a long time and involved many political games and discharged local management. In the end all subsidiaries did have the same hardware platform, except LeaseNed.

After some initial resistance, LeaseNed agreed to start up a project to migrate to the holding platform. Because the lease administration system they used was outdated, LeaseNed wanted to develop a new leasing system in the same run. The Director of Automation agreed with this approach because NOLS, the leasing system used by the other countries, had also various problems. The intention of the director was that the new system, developed by LeaseNed, could ultimately replace NOLS. A project, called Info '90, was started in LeaseNed that would cater for the requirements mentioned above. After more than four years, this project, that had cost millions of dollars, was terminated. The reasons were mismanagement and the enormous complexity of creating one information system for the entire organization. Several high placed managers were discharged and the failure of Info '90 has had major ramifications on IS implementations, especially for LeaseNed. LeaseNed still had an outdated leasing system on an non-compatible hardware platform and there was no successor of NOLS. The relation between LeaseNed and the holding was also disrupted, the basis of an anti-holding atmosphere, which is still present in 1997, was created. The implementation of other applications was also disrupted because these applications were based upon the wrong assumption that LeaseNed would have migrated to the holding platform.

IS implementations were also guided by changes in the external - as well as internal environments in this period. Examples are the development of an electronic link between LeaseNed and car garages (Dealer network) and an expert system for the maintenance department at LeaseNed. The Dealer network was triggered by investigations of such networks by competitors of LeaseNed. The expert system was developed because the maintenance department of LeaseNed couldn't cope with the huge amount of maintenance and repair requests each day. The expert system was also created because LeaseHold strives to be very innovative and the use of highly sophisticated expert system technology fitted in this ambition. A truly organization wide approach towards IS was still not possible because of the past development path of LeaseHold. In this period the Director of Automation was highly involved in the development of IS at LeaseNed. The expert system and the Dealer network were both developed for LeaseNed. Other subsidiaries were still independent in their development of local applications.

Mid '90

Business developments

In the beginning of the nineties, LeaseHold controlled subsidiaries in 20 countries. The development that the holding wanted to execute more co-ordination was established further. Some of the smaller subsidiaries started to ask for the formulation of a business strategy to have an indication in what direction the company as a whole should develop. The formulation of such a strategy gave rise to arguments. Heated discussions were conducted in the Board of Directors between the 'older' managers and the more recently appointed managers. The first have been responsible for the foundation of the company and the fast growth of LeaseHold because of their entrepreneurial skills. The latter were more educated in strategic thinking and recognized the need for a clear cut strategy for the whole company indicating how it should position itself in the market place. One can thus say that only a few years ago, the Board of Directors started to recognize the need for the formulation of a business strategy. This remark is supported by the facts, the first formal strategic outlook was produced in 1994. This outlook was very general and did not influence the already developed IS strategy. In addition to this strategic note, the Board of Directors come together regularly to discus the strategy of the organization but so far, nothing useful did come out of these sessions. This is a distinct characteristic of this organization; most of the people on management level still believe in the success of the entrepreneurial approach towards the lease business.

The developments in this period showed that the influence of the holding was still growing. Although the 'older' subsidiaries opposed to this situation, slowly these subsidiaries began to see the need for a clear strategic direction for the company. This notion was raised because some countries experienced a setback in the lease markets. This setback was caused by increased competition and the change of attitude towards the car in most of the European countries. The change of attitude (stimulated by government legislation) and the increasing competition will have a negative influence on the profitability of LeaseHold. At this moment, the organization as a whole is still very profitable and is able to show a double digit growth in profit each year. This growth is the result of the start up of countries in economically fast growing regions all over the world. Another source of growth is the successful acquisition of existing leasing companies. The organization is continuously striving to enter new markets to secure the growth in the future.

An important development of the mid nineties is that multinationals started to ask for complete leasing solutions for their entire fleet all over the world. This development required international contracts for the entire car fleet for multinationals that did override the local contracts. A big problem was that the lease products had evolved very differently in the individual countries. The holding recognized this problem and discussions were started to come to a common view on product management. LeaseHold realized that an international approach towards sales to multinationals was required. A new international sales department was established in the holding; LeaseHold International (LHI). In 1996, LeaseHold International is responsible for clients with fleets exceeding 2.000 cars.

The IS strategy

One can argue that the IS strategy was continued that was formulated in the last period. This strategy proved to be an effective response to recent developments in the environment. The co-ordination of the IS function at LeaseHold was growing. This was possible because the IS organization is structured in such a way that the Director of Automation must approve all IS projects in subsidiaries and in the holding

before they are introduced at the Board of Directors. Moreover, the IS budgets of the countries must also be approved by the director, before they can be discussed in the budget meetings with the Board of Directors. This means that he can judge and disapprove proposals that do not comply with the IS strategy. However, this does not mean that the director is the only source of ideas about IS implementations. Because of the independence of the subsidiaries, the countries can also develop ideas for IS implementations. If these ideas are promising, resources will be made available to start the development. It is the intention of the holding that other subsidiaries can use these innovations as well, if possible. The local approach towards IS is still considered to be of big value when serving local markets. Also, if new promising IS technologies are available and these new technologies increase client satisfaction or realize cost benefits, resources will be made available for the implementation of such technologies. One can thus say that LeaseHold strives to be, and always has strafed to be, a very innovative organization.

A change of attitude towards organization wide IS is evident in this period. Not only is the acceptance towards organization wide IS growing at the subsidiaries, the holding does also not accept resistance any more. IS developments initiated by the holding must be implemented. A strange point is that the choice of when organization wide IS applications should be implemented is still to be decided by the local subsidiaries. On the basis of the IS strategy discussed earlier, the main IS goals of this period were to establish exchange of knowledge about IS systems between the subsidiaries and the implementation of standards to reduce the costs of IS at LeaseHold.

Implementation of the IS strategy

In this period, IS implementations were very much driven by the changing external environment and not so much by the IS strategy. However, LeaseHold succeeded in responding to external developments by implementing IS applications that fitted the ambition of standardization and exchange of knowledge. Examples are an international client database and the CLS project.

Because complete solutions for car fleets of multinationals were required, the holding was confronted with the fact that LeaseHold did not have an overview of all its customers worldwide. To enable international quotations for multinationals it became evident that the holding should have an overview of all clients. An international client database was created to give the holding this overview. As a result of the failure of Info '90, a successor for NOLS was still not available. Recent developments in the environment highlighted the problems and shortcomings of NOLS. The requirement to make international quotations made it also clear for LeaseHold that the organization as a whole should concentrate more on product management. In reaction to these problems, the Director of Automation started a project to make the databases of the Big Five really identical, the CLS project. This very ambitious project was started in the beginning of 1996 and progress is very slowly. Although all subsidiaries of the Big Five co-operate, the process of creating this database is characterized by distrust, striving to secure local requirements and political games.

Next to the CLS project, organization wide IS applications that fit the path towards the open network organization are initiated as well in this period. On the basis of the new core database, new local applications can be generated to fulfil local needs. To stimulate the exchange of knowledge with respect to IS applications developed by individual countries, investigations of one development tool for all countries were started. In me end of 1996, after heavy discussions, a decision was made for one development tool. Another example is (LeaseHold Office) a software package, installed at the client, that enables the

generation of the required reports and information directly at the client. The definition of a complete new Maintenance system is also in line with the IS strategy. This system includes the operational part of maintenance, the Dealer Network and the Expert system. The attempt from the holding to increase communication and exchange of knowledge between the countries is slowly starting to bear fruit. The Steering Committee and the IS managers of the CLS team did come together to discuss the progress of CLS. At this moment, it is decided that, besides the progress of CLS, the meetings will also be used to discus other (possibilities for) innovative organization wide implementations.

5. DISCUSSION

This section discusses the evolution of the IS strategy at LeaseHold. By elaborating patterns of and influences on the evolution of the IS strategy we hope to learn lessons for using IS successfully in organizations. The pattern of evolution will be analyzed by using the theories discussed in sections 2 and 3.

The founding and development until the eighties

In the early days of this organization, IS was an unknown concept and there was no formal business strategy at LeaseHold. However, characteristics of this organization were developed in this period that at this moment still influence the evolution of IS at LeaseHold. This path dependency of organizational evolution is identified in almost all literature on evolutionary theories applied to organizations (March, 1993; Nelson and Winter, 1982; Ginsberg and Baum, 1993;), as well as basic evolution theories (Dawkins, 1986). Characteristics that have influenced (and still influences) the path of evolution of IS at LeaseHold are:

- LeaseNed grew because of the entrepreneurial approach towards the lease business;
- the independence of the subsidiaries.

These characteristics relate to the organizational path of evolution. This path can be characterised in this period as a sequence of organizational actions by the business units, in response to the market environment. Nelson and Winter (1982), among others, have described this path of organizational evolution. Organizational actions were not driven by any formal plan or technological innovations but were more ad hoc, non-linear and accidental responses to the environment (Ayres, 1994; Dawkins, 1986). However, these actions proved to be successful and because this approach was successful, this entrepreneurial approach still plays a big role in LeaseHold's behaviour. 'Old' management persists in believing in the success of the entrepreneurial approach towards the lease business. Past successful routines thus influence both current ways of doing things in the organization as well as organizational changes (Nelson and Winter, 1982; Ginsberg and Baum, 1993; Dosi, 1988).

The beginning of the eighties

In the beginning of the eighties, IS was introduced at LeaseHold to support administrative activities. The IS developments in this period (the implementation of NOLS in the subsidiaries and the development of an IS department for support) can be looked upon as the start of the evolution of IS at LeaseHold. Considering this, the principle of co-evolution of IS in organizations and the organization itself, introduced by Soe and Markus (1995), becomes an interesting thought. The organizational evolution of LeaseHold was already on its way. Proceeding technology in the external IS environment

enabled LeaseHold to introduce IS to support organizational activities. IS became thus the enabler of changing the way of doing things in this organization.

Although the subsidiaries were placed under the control of a holding, these business units could still develop independently. The IS function in the subsidiaries developed accordingly. IS was used to support the local subsidiaries in responding to the environment and NOLS was extended with applications to support local organizational activities. Organizational evolution in this period was not driven by plans, but organizational change was still ad hoc and short term (Ayres, 1994; Dawkins, 1986). The IS function co-evolved with organizational evolution to support the evolutionary paths of the subsidiaries.

End of the eighties/beginning of the nineties

Till the end of the eighties, local IS developments in the business units were stimulated because the local approach towards the lease markets was seen as the key success factor. Increased competition made LeaseHold realize that synergy, joint development of products and exchange of knowledge, especially in IS, could lower the costs of the organization and would facilitate future performance. This led to the appointment of the Director of Automation and his primary task was to implement more co-ordination on the IS area for the entire organization. This appointment has been a very important step in the evolution of an IS strategy at LeaseHold. The Director of Automation has evolved in the organization to become an IS champion (described by Beath, 1991), who has facilitated the success of an organization wide approach towards IS.

Changing external market conditions thus required organizational changes. LeaseHold reacted to this by influencing the evolution of IS; more co-ordination was imposed on the area of IS and this should secure and improve the successful organizational evolution of LeaseHold in the future. Although technological innovations made this wish for more co-ordination possible, technological innovation was not the driver of change, as is argued by Nolan (1979), Freeman (1988), Dosi and Grsenigo (1988) and Allen (1988). The drivers of change were the changing external market conditions. IS served as the enabler of organizational change in response to the changing market environment. Next to the role of the external environments, the evolution of the IS strategy was also heavily influenced by the vision of a key player (Ayres, 1994); The IS strategy was formulated by the Director of Automation. This strategy initiated organization wide IS implementations but also gave a framework by which possible IS innovations of subsidiaries could be judged.

In this period organization wide IS were implemented that supported the IS strategy (Hardware platform, WAN and LAN). The context of the organization developed in the past made these implementations very hard to realize. An example is the failure of Info '90, this failure has had huge influence on the evolution of IS at LeaseHold and gave possibilities for important lessons for organizational change processes with IS in the future (Nelson and Winter, 1982; Ginsberg and Baum, 1993). However, the organization appears to be hard-headed in this respect. Current IS implementations and organizational change processes still show characteristics that made Info '90 a big failure.

Not only the IS strategy initiated IS implementations. IS applications were also triggered directly (Dealer network and Expert system) by changing external - and internal environments. IS implementations were thus also still driven by short term responses to the environments. In case of the Dealer network, for example, LeaseNed was forced to start the investigations immediately to beat the competitors in the development of a similar application. The Dealer network and the expert system were only developed

for LeaseNed and this highlights the fact that a truly organization wide approach was still not possible. This is a result of the context in which the IS implementations had to be realized (Fombnm, 1993; March; 1993). The subsidiaries had to get used to the organization wide approach to IS and it was a real challenge for the holding to create an atmosphere in the entire organization in which the IS strategy could grow (Mintzberg, 1987).

Mid Nineties

A business strategy was formulated at LeaseHold in this period. This business strategy did not influence the IS strategy. Apparently is the presence of a business strategy no condition for using IS in organizations! This case study thus confirms the critics on IS planning methods. As in the last period, IS implementations in this period were guided by the IS strategy (LeaseHold Office, the new Maintenance part) as well as reactions to changing external environments (international client database, CLS).

To summarize one can say that the evolution of IS was continuously driven by the wish to effect organizational performance. Changing external market conditions asked for organizational changes to remain profitable. With the increasing pace of technology, the role of IS at LeaseHold increased as well in making these organizational changes possible. On the other hand, LeaseHold continuously strives to engage in search activities to detect technological innovations that could improve organizational performance and service to the clients. The evolution of the IS function at LeaseHold can thus be characterized as both deliberate and emergent (Mintzberg, 1987). The IS strategy guided implementations (deliberate) but ad hoc responses to changing environment were also stimulated (emergent). IS is used at LeaseHold as the enabler of organizational change. Strong evidence is thus found for the principal of co-evolution, introduced by Soe and Markus (1995).

An IS strategy was formulated in response to the idea that the past development had resulted in an organization, characterised by the entrepreneurial approach towards local lease markets, that would not be capable of competing successfully in the changing external environment. The entrepreneurial approach of the organization in the past had resulted in an unfettered growth of IS at LeaseHold. An IS strategy was created with the goal to consolidate and rationalize the IS function. This IS strategy was heavily influenced by the vision of a key player (Ayres, 1994), the Director of Automation. Strategic IS planning models have not played a role in the development of the IS strategy at LeaseHold. Mintzberg (1987) argues that planning can be used to program already developed strategies. In this case study we did not found support for this role of IS planning. IS applications in line with the IS strategy were implemented rather ad hoc and with a good feeling for timing. This approach towards the realization of the IS strategy was necessary because, as a result of the past development path, the holding first had to create an atmosphere in which the IS strategy could be accepted.

6 CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Evolutionary theories applied to IS in organizations has given some important insights. The elaboration of the evolution of an IS strategy at LeaseHold has taught us that the practical use of IS planning models is minimal. The co-evolution of IS in organizations and the organization itself might be a sound concept for explaining (and perhaps guiding) the evolution of the IS function in organizations. However, this concept need more elaboration, both practical and theoretical. At LeaseHold, the evolution of IS was driven by the wish to effect organizational performance in an changing environment. With the

increasing pace of technology, IS was increasingly used to change the way of work in this organization to meet increasing competition. The development of the IS function at LeaseHold is both a result of deliberate design (an IS strategy) as well as emerging possibilities and threats in the external environment (ad hoc IS implementations).

The evolution of the IS function was heavily influenced by the vision of a key person. This IS champion facilitated the change to a more organization wide approach towards IS at LeaseHold and created an IS strategy that guided IS implementations. The IS strategy was formulated in an attempt to rationalize and consolidate the IS function of the organization that was developed in the past. The past development path of an organization is shown to be of big importance for realization of the intended strategy. Recognizing the context and creating a climate in which the IS strategy can grow has taken a lot of effort at LeaseHold.

By confronting academic theories on IS in organization with the evolution of IS at LeaseHold we hoped to generate important lessons for using IS successfully in organizations. IS planning models have lost their practical use and an evolutionary approach towards IS in organizations might have more potential. However, this approach is very young and theoretical elaboration is necessary as well as judging the practical value of this approach in business practice.

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